



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/720,282

11/25/2003

Tadashi Ishii

0234-0472P

4753

2292

7590

02/03/2005

BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER

MAYO III, WILLIAM H

ART UNIT

PAPER NUMBER

2831

DATE MAILED: 02/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/720,282

Applicant(s)

ISHII ET AL.

Examiner

William H. Mayo III

Art Unit

2831

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 November 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings were received on November 29, 2004. These drawings are disapproved because Figure 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

Art Unit: 2831

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-3, 5-12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Higashiura et al (JP Pat Num 10-125140, herein referred to as Higashiura) in view of Hosoi (JP Pat Num 04-345703). Higashiura discloses a multilayer insulated wire (Fig 1) having high heat resistance and high flexibility that may be for usage with a transformer (abstract). Specifically, with respect to claim 1, Higashiura discloses a multilayer insulated wire (Fig 1) having two or more extruded insulation layers (6b-6d) provided on a conductor (6a) to coat the conductor (6a, abstract), comprising at least one insulating layer (6b-6c) having polyethersulfone resin (abstract), wherein at least one of the insulating layers (6d) other than the at least one insulating layer (6b-6c), is provided as an outer layer (Fig 1) to the at least one insulating layer (6b-6c). With respect to claim 5, Higashiura discloses that the multilayer insulating wire (Fig 1) is for usage with a transformer (abstract). With respect to claim 6, Higashiura discloses a multilayer insulated wire (Fig 1) having two or more solderable extrusion insulating layers (6b-6d) provided on a conductor (6a) to coat the conductor (6a, abstract), comprising at least one insulating layer (6b-6c) having 100 parts of resin (A) that may be polyetherimide resin or polyethersulfone resin (abstract), and 10 parts by weight of resin (B) selected from the group consisting of polycarbonate, polyarylate, polyester, or polyamide resin (abstract), wherein at least one of the insulating layers

(6d) other than the at least one insulating layer (6b-6c), is provided as an outer layer (Fig 1) to the at least one insulating layer (6b-6c). With respect to claim 7, Higashirura discloses that the resin (A) may be polyethersulfone resin (abstract). With respect to claim 8, Higashirura discloses that the resin (B) may be polycarbonate resin (abstract). With respect to claim 9, Higashirura discloses that the resin (A) may be polyethersulfone resin (abstract) and the resin (B) may be polycarbonate resin (abstract). With respect to claim 10, Higashirura discloses resin mixture is made by blending 100 parts of weight of resin (A) and 10-70 parts by weight of resin (B, abstract). With respect to claim 14₆₋₁₀, Higashirura discloses that the multilayer insulating wire (Fig 1) is for usage with a transformer (abstract).

Higashirura doesn't necessarily disclose the outer layer being polyphenylenesulfide resin (claims 1 & 6), nor the polyphenylenesulfide resin forming at least one insulating layer that has a loss modulus that is two or more times the storage modulus at 300°C and 1 rad/s in a nitrogen atmosphere (claims 2 & 11₆₋₁₀), nor the outermost layer being polyphenylenesulfide (claims 3 & 12₆₋₁₀).

Hosoi teaches multilayer-coated wire (Fig 1) capable of being utilized in a transformer having excellent heat resistance and anti-wear properties along with great flexibility (abstract). Specifically, with respect to claims 1 & 6, Hosoi teaches a multilayer-coated wire comprising at least one or more insulating layers (2 & 3) coating a conductor (1), wherein the outermost layer comprises polyphenylenesulfide resin (abstract). With respect to claims 2 & 11₆₋₁₀, Hosoi teaches that the outmost layer may be made of polyphenylenesulfide resin, which inherently exhibits a loss modulus that is

Art Unit: 2831

two or more times the storage modulus at 300°C and 1 rad/s in a nitrogen atmosphere.

With respect to claims 3 & 12₆₋₁₀, Hosoi teaches a multilayer-coated wire comprising at least one or more insulating layers (2 & 3) coating a conductor (1), wherein the outermost layer comprises polyphenylenesulfide resin (abstract).

With respect to claims 1-3 and 11-12₆₋₁₀, it would have been obvious to one having ordinary skill in the art of cables at the time the invention was made to modify the insulated wire of Higashiura to comprise the outermost layer being polyphenylenesulfide resin as taught by Hosoi because Hosoi teaches that such a configuration provides a multilayer insulated wire having excellent heat resistance and anti-wear properties along with great flexibility (abstract) and since it has been held to be within general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

5. Claims 4 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Higashiura et al (JP Pat Num 10-125140) in view of Hosoi (JP Pat Num 04-345703, herein referred to as modified Higashiura), as applied to claims 1 and 6-10 above, further in view of Nakano et al (Pat Num 5,166,238, herein referred to as Nakano). Modified Higashiura discloses a multilayer insulated wire (Fig 1) having high heat resistance and high flexibility that may be for usage with a transformer (abstract) as disclosed above. Specifically, modified Higashiura discloses that the resin (A) may be polyethersulfone resin (abstract) and the resin mixture is made by blending 100 parts of weight of resin (A).

However, modified Higashiura doesn't necessarily disclose the at least one insulating layer is composed of a mixture made by blending: 10 to 85 parts by weight of an inorganic filler (claim 4 & 13).

Nakano teaches a styrene based resin having excellent heat resistance, electrical insulating properties, solvent resistance, chemical resistance, mechanical strength, modulus of elasticity, and dimensional stability, that may be utilized in various applications, such as coating electrical materials (Col 1, lines 35-52). With respect to claims 4 & 13, Nakano teaches a resin coating that may comprise polyethersulfone having an inorganic filler (Col 9, lines 5-15) that may be 10 parts (Col 11, lines 8-16).

With respect claims 4 & 13, it would have been obvious to one having ordinary skill in the art of cables at the time the invention was made to modify the insulated wire of modified Higashiura to comprise the filler resin configuration as taught by Nakano because Nakano teaches that such a configuration provides a resin having excellent heat resistance, electrical insulating properties, solvent resistance, chemical resistance, mechanical strength, modulus of elasticity, and dimensional stability, that may be utilized in various applications, such as coating electrical materials (Col 1, lines 35-52).

Response to Arguments

6. Applicant's arguments filed November 29, 2004 have been fully considered but they are not persuasive. Specifically, the applicant argues the following:

Art Unit: 2831

- A) The label of Figure 2 being prior art is inappropriate, since one of skill in the art upon reading the current specification would understand this Figure is a comparative example and not prior art.
- B) The cited combination of Higashiura, Hosoi, and in some cases the Nakano references fails to disclose all of the advantages of the present invention, such as good solderability, chemical resistance, and solvent resistance and therefore a prima facie case of obviousness has not been established.
- C) Higashiura fails to disclose or recognize any use of a polyphenylenesulfide resin.
- D) Hosoi discloses an inner layer being a flexible fluoropolymer, which doesn't provide the heat resistant as the claimed invention material and therefore only utilizes the outer layer of polyphenylenesulfide to provide the interior inferior layer with heat and abrasion resistance and therefore the teaching of utilizing the polyphenylenesulfide layer with inferior fluoropolymer layers teaches away from the claimed invention because applicant's interior layer provides excellent heat resistance.
- E) Based on the teaching of Hosoi, there is no suggestion to combine the reference with Higashiura and therefore the combination of Higashiura, Hosoi, and in some cases the Nakano reference is improper.

With respect to argument A, the examiner respectfully traverses. While the examiner agrees that Figure 2 may be an comparative embodiment, the applicant has

still indicated in the specification that the Figure is known and conventional in the art of electrical cables. Specifically, the applicant states:

"Fig. 2 is a cross-sectional view illustrating an example of the transformer having a conventional structure."

The examiner is required to maintain that all that is old is depicted as Prior Art.

Specifically, the MPEP Section 608.02(g) states:

608.02(g) [R-2] Illustration of Prior Art

Figures showing the prior art are usually unnecessary and should be canceled.

Ex parte Elliott, 1904 C.D. 103, 109 O.G. 1337 (Comm'r Pat. 1904).

However, where needed to understand applicant's invention, they may be retained if designated by a legend such as "Prior Art." If the prior art figure is not labeled, form paragraph 6.36.01 may be used

In light of the above comments, the examiner respectfully submits that the objection of the drawings is proper and just.

With respect to argument B, the examiner respectfully traverses. It must be understood that obviousness is not based on whether the prior art references disclose the same advantages of the claimed invention. Specifically, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Therefore, the prior art references don't have to specify the specific advantages of the claimed invention in order to establish a proper prima facie case of obviousness. The guidelines for establishing a prima facie case of obviousness is as follows:

ESTABLISHING A PRIMA FACIE CASE OF OBVIOUSNESS

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP §2143 - §2143.03 for decisions pertinent to each of these criteria. In this case, Higashiura discloses all of the claim subject matter except the outer layer being polyphenylenesulfide resin. Specifically, Higashiura discloses a multilayer insulated wire (Fig 1) having high heat resistance and high flexibility that may be for usage with a transformer (abstract) having two or more extruded insulation layers (6b-6d) provided on a conductor (6a) to coat the conductor (6a, abstract), comprising at least one insulating layer (6b-6c) having polyethersulfone resin (abstract), wherein at least one of the insulating layers (6d) other than the at least one insulating layer (6b-6c), is provided as an outer layer (Fig 1) to the at least one insulating layer (6b-6c). However, Higashiura doesn't specifically disclose the outer layer being polyphenylenesulfide resin.

Hosoi teaches multilayer-coated wire (Fig 1) capable of being utilized in a transformer having excellent heat resistance and anti-wear properties along with great

Art Unit: 2831

flexibility (abstract). Specifically, with respect to claims 1 & 6, Hosoi teaches a multilayer coated wire comprising at least one or more insulating layers (2 & 3) coating a conductor (1), wherein the outermost layer comprises polyphenylenesulfide resin (abstract), wherein the polyphenylenesulfide resin layer is responsible for providing the heat and abrasion resistant (see page 2, paragraph 3).

Clearly, there exist a motivation for modifying the outer layer of Higashiura with the outer layer of Hosoi because Hosoi teaches a multi-layered conductor utilized in the same environment as Higashiura having an outer layer that provides the same characteristics as Higashiura. Secondly, clearly there exist a reasonable expectation of success, as both are utilized in harsh environment, such as a transformer, and the modification would not alter the final overall characteristics, which is a multi-layer conductor having excellent heat resistance and abrasion resistance properties, since both Higashiura and Hosoi are considered with the same characteristics. Thirdly, all of the claim limitations are present in the combination of Higashiura and Hosoi and therefore a proper prima facie case of obviousness has been established as dictated by the MPEP.

With respect to arguments C & D, the examiner respectfully traverses. The applicant appears to be arguing the prior art references individually, when clearly the examiner is basing the rejection on a combination of teachings. Specifically, with respect to the applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871

Art Unit: 2831

(CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). As stated above, the examiner agrees that Higashiura fails to disclose or recognize any use of a polyphenylenesulfide resin. The examiner also agrees that Hosoi discloses an inner layer being a flexible fluoropolymer, which doesn't provide the heat resistant as the claimed invention material. However, Hosoi has been cited for its teaching that utilizing as the outermost layer of a multi-layer conductor for usage in a transformer, such a material as polyphenylenesulfide resin (abstract), providing a multi-layer conductor having excellent heat and abrasion resistant (see page 2, paragraph 3). The examiner would also like to state that if Higashiura hypothetically did teach the outer layer being polyphenylenesulfide or if Hosoi hypothetically did teach the inner layer being polyethersulfone resin, then a rejection under 35 USC 103(a) would be improper as a rejection under 35 USC 102(b) would be proper.

With respect to argument E, the examiner respectfully traverses. The examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, as In this case, Higashiura a multilayer insulated wire (Fig 1) having high heat resistance and high flexibility that may be for usage with a transformer (abstract) having two or more extruded insulation layers (6b-

Art Unit: 2831

6d) provided on a conductor (6a) to coat the conductor (6a, abstract), as claimed with the exception of the outer layer being polyphenylenesulfide resin.

Hosoi clearly teaches multilayer-coated wire (Fig 1) capable of being utilized in a transformer having excellent heat resistance and anti-wear properties along with great flexibility (abstract), wherein the multilayer coated wire comprises at least one or more insulating layers (2 & 3) coating a conductor (1), wherein the outermost layer comprises polyphenylenesulfide resin (abstract), wherein the polyphenylenesulfide resin layer is responsible for providing the heat and abrasion resistant (see page 2, paragraph 3).

Therefore, it would have been obvious to one having ordinary skill in the art of cables at the time the invention was made to modify the insulated wire of Higashiura to comprise the outermost layer being polyphenylenesulfide resin as taught by Hosoi because Hosoi teaches that such a configuration provides a multilayer insulated wire having excellent heat resistance and anti-wear properties along with great flexibility (abstract) and since it has been held to be within general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

In light of the above statements, the examiner respectfully submits that the 35 USC 103(a) rejections of claims 1-14 are proper and just

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Communication

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William H. Mayo III whose telephone number is (571)-272-1978. The examiner can normally be reached on M-F 8:30am-6:00 pm (alternate Fridays off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on (571) 272-2800 ext 31. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2831

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



William H. Mayo III
Primary Examiner
Art Unit 2831

WHM III
January 26, 2005